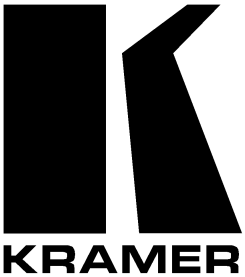
Kramer Electronics, Ltd.



USER MANUAL

Model:

VP-450

1:4 High Resolution UXGA DA

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1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 350-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your Kramer TOOLS **VP-450** *1:4 High Resolution UXGA DA* which is ideal for:

- Multi monitor applications or presentation systems requiring local monitors and large screen display devices such as a projector
- Rental and staging systems
- Schools, churches, corporate applications

The package includes the following items:

- **VP-450** *1:4 High Resolution UXGA DA*
- Power adapter (12V DC Input)
- This user manual[2]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high resolution cables[3]

3 Overview

The Kramer **VP-450** is a high performance 1:4 distribution amplifier for UXGA and higher resolution signals.

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from our Web site: http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

The **VP-450**:

- Accepts one input, provides correct buffering and isolation, and then distributes the signal to 4 identical outputs on high-density 15-pin HD connectors
- Has a video bandwidth exceeding 400MHz, ensuring that the machine remains transparent even at high-resolution graphics modes such as UXGA (1600x1200)
- Accepts analog or digital syncs[1] and provides ID Bit control[2]
- Can output video signals that are DC or AC coupled for maximum flexibility (selected via red, green and blue coupling buttons)

To achieve the best performance:

- Connect only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality and position your Kramer **VP-450** away from moisture, excessive sunlight and dust

4 Your VP-450 1:4 High Resolution UXGA DA

Figure 1, Figure 2 and Table 1 define the **VP-450** unit:

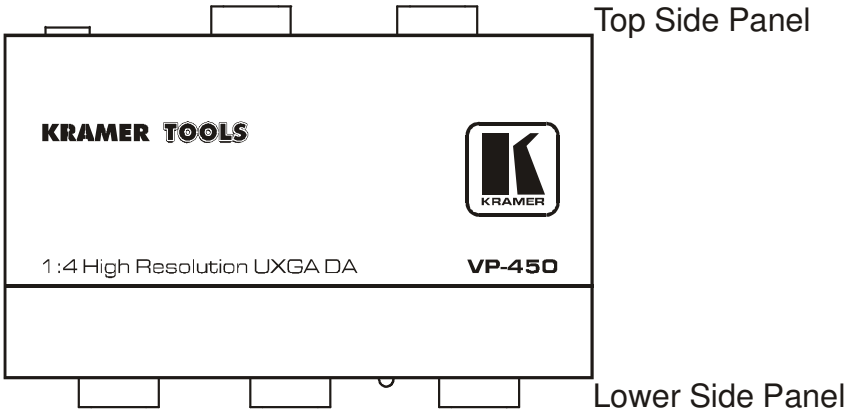

Figure 1: VP-450 1:4 High Resolution UXGA DA

1 The polarity is determined via a pair of underside switches. Note that both the Hs (horizontal sync) switch and the Vs (vertical sync) switch should be set identically

2 Via an underside switch. Sometimes notebook computers refuse to output a VGA signal to an external VGA monitor. By setting the ID BIT to ON, the notebook will output to an external VGA monitor

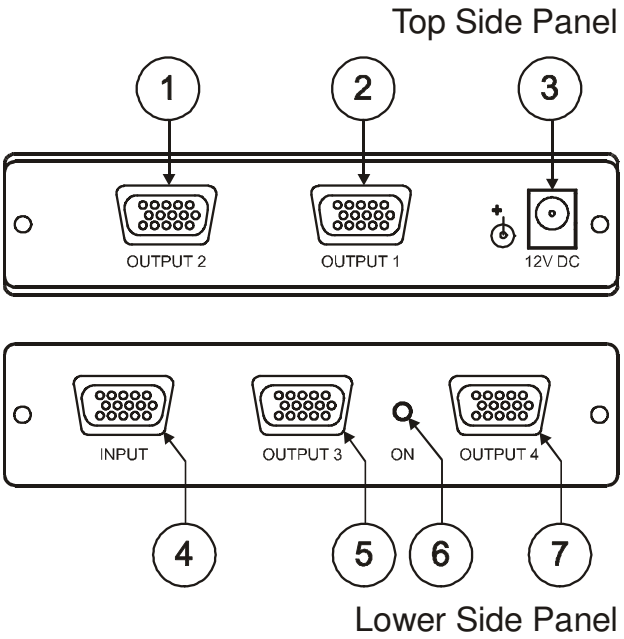

Figure 2: VP-450 1:4 High Resolution UXGA DA – Top and Lower Side Panels

Table 1: Features and Functions of the VP-450 1:4 High Resolution UXGA DA

#	Feature	Function
1	*OUTPUT 2* HD15F Connector	Connect to the UXGA acceptor 2
2	*OUTPUT 1* HD15F Connector	Connect to the UXGA acceptor 1
3	*12V DC*	+12V DC connector for powering the unit
4	*INPUT* HD15F Connector	Connect to the UXGA source
5	*OUTPUT 3* HD15F Connector	Connect to the UXGA acceptor 3
6	*ON* LED	Illuminates when receiving power
7	*OUTPUT 4* HD15F Connector	Connect to the UXGA acceptor 4

Figure 3 and Table 2 define the switches on the underside of the **VP-450**:

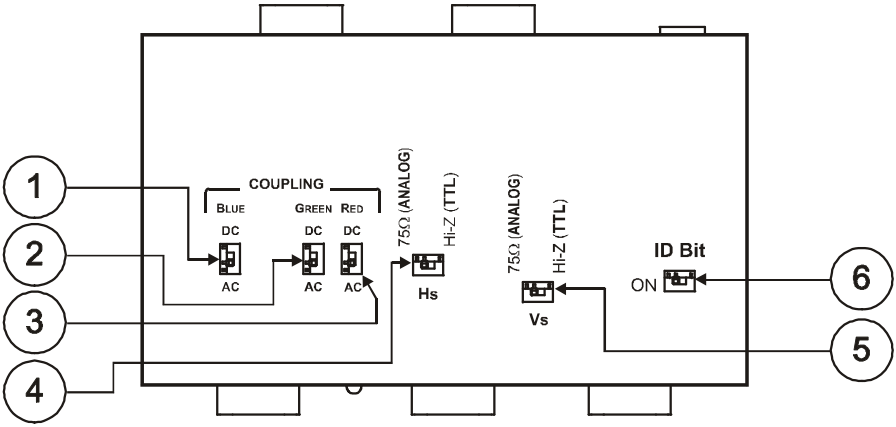

Figure 3: VP-450 1:4 High Resolution UXGA DA Underside

Table 2: VP-450 1:4 High Resolution UXGA DA Underside Features

#	Feature		Function
1	*COUPLING*	*BLUE DC-AC* Switch	Switch to DC to select DC coupling[1], switch to AC to select AC coupling (removing the DC offset of the input signal)
2	*COUPLING*	*GREEN DC-AC* Switch	
3	*COUPLING*	*RED DC-AC* Switch	
4	Hs (Horizontal Sync) Switch		Set both switches[2] to Hi-Z (TTL[3]) if the source is, for example, a digital graphics card. Set both switches to 75Ω (ANALOG) if the source is analog based, for example, an RGBHV source with coaxial cable for sync
5	Vs (Vertical Sync) Switch		
6	*ID Bit* Switch		Slide to the left to set to ON[4]; to the right to set to OFF

1 Achieving the best linearity and signal fidelity

2 Both the Hs and the Vs switches should be set identically – since graphics cards do not have mixed (TTL and ANALOG) syncs. (No harm will occur to the graphics source if the switches are set to the wrong direction)

3 "Transistor-Transistor Logic" for syncs with digital logic levels

4 Enabling the notebook or laptop to output a VGA signal to an external VGA monitor

5 Connecting Your VP-450 1:4 High Resolution UXGA DA

To output a UXGA[1] signal from a computer graphics card to 4 monitors, as the example in Figure 4 illustrates, do the following:

1. Connect a UXGA[1] source (for example, a computer graphics card) to the INPUT HD15F connector.
2. Connect the OUTPUT HD15F connectors to up to 4 acceptors, as follows:
   - Connect the OUTPUT 1 connector to an acceptor (for example, Display 1)
   - Connect the OUTPUT 2 connector to an acceptor (for example, Display 2)
   - Connect the OUTPUT 3 connector to an acceptor (for example, Display 3)
   - Connect the OUTPUT 4 connector to an acceptor (for example, Display 4)
3. On the underside of the **VP-450**:
   - Set both the Hs and Vs switches to Hi-Z (TTL)
   - Slide the ID Bit switch to the left to set to ON
   - Set the RED, BLUE and GREEN COUPLING switches either to DC or AC, according to the output requirements
4. Connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity.

1 Or any resolution, such as VGA, SVGA, XGA, and so on

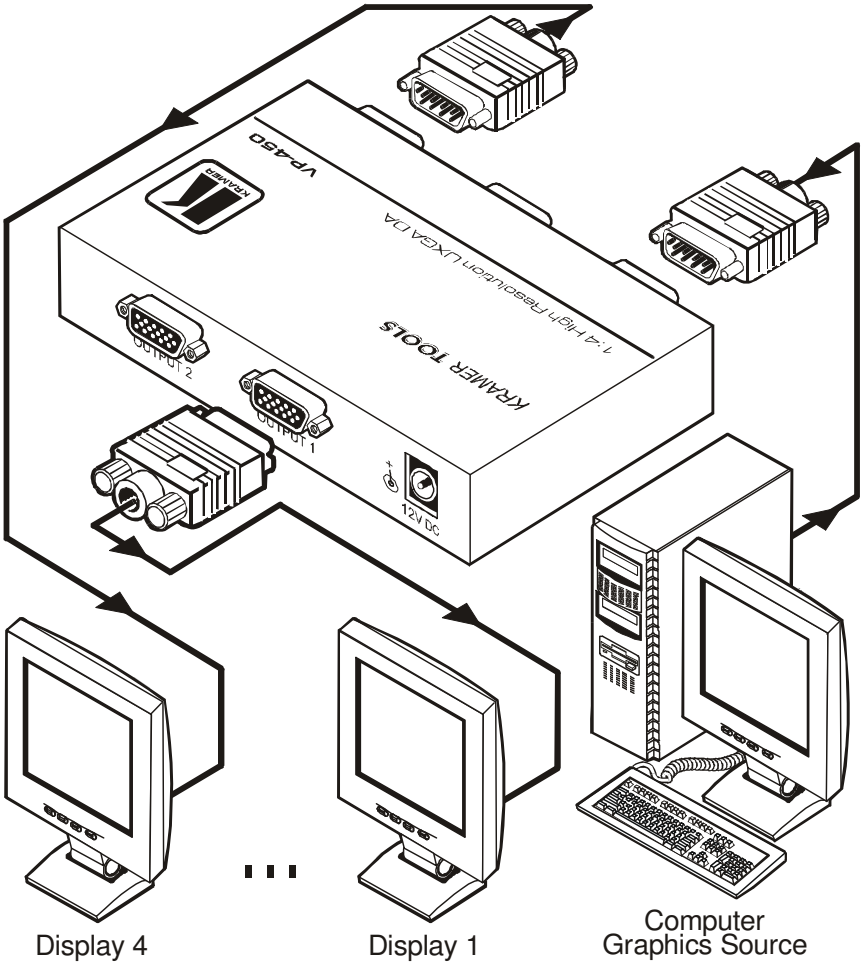

Figure 4: Connecting the VP-450

6 Technical Specifications

Table 3 includes the technical specifications:

Table 3: Technical Specifications[1] of the VP-450 1:4 High Resolution UXGA DA

INPUT:	1 XGA on an HD15F connector
OUTPUTS:	4 XGA on HD15F connectors
MAX. OUTPUT LEVEL:	2.3Vpp
BANDWIDTH (-3dB):	420MHz
DIFF. GAIN:	0.04%
DIFF. PHASE:	0.03 Deg.
K-FACTOR:	<0.05%
S/N RATIO:	81dB
CONTROLS:	AC/DC selectors for R, G, B via 3 switches; Pair of switches for analog/TTL selection syncs on the underside; ID Bit switch on the underside
COUPLING:	DC/AC by selection
POWER SOURCE:	12VDC, 125mA
DIMENSIONS:	12cm x 7.15cm x 2.76cm (4.7" x 2.8" x 1.08"), W, D, H
WEIGHT:	0.3 kg. (0.67 lbs.) approx.
ACCESSORIES:	Power supply, mounting bracket
OPTIONS:	19" rack adapters RK-T1, RK-T3

1 Specifications are subject to change without notice

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
   - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   - ii) Product modification, or failure to follow instructions supplied with the product
   - iii) Repair or attempted repair by anyone not authorized by Kramer
   - iv) Any shipment of the product (claims must be presented to the carrier)
   - v) Removal or installation of the product
   - vi) Any other cause, which does not relate to a product defect
   - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.
NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.
This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B – Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

Kramer Electronics, Ltd.
Web site: www.kramerelectronics.com
E-mail: info@kramerel.com
P/N: 2900-000123 REV 2